



# TOWN OF PORTOLA VALLEY

## Emergency Preparedness Committee Meeting

April 4, 2024

8:00AM

### IN-PERSON MEETING

### HISTORIC SCHOOLHOUSE – 765 PORTOLA RD. – PORTOLA VALLEY, CA

**REMOTE MEETING ADVISORY:** On March 1, 2023, all committees in Portola Valley will return to conducting in-person meetings. A Zoom link will be provided for members of the public to participate remotely; however, the Town cannot guarantee there will be no technical issues with the software during the meeting. For best public participation results, attending the meeting in-person is advised.

### **ASSISTANCE FOR PEOPLE WITH DISABILITIES**

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Town Clerk at (650) 851-1700 or by email at towncenter@portolavalley.net. Notification 48 hours prior to the meeting will enable the Town to make reasonable arrangements to ensure accessibility to this meeting.

### VIRTUAL PARTICIPATION VIA ZOOM

#### To access the meeting by computer:

<https://us06web.zoom.us/j/83961538964?pwd=qZlfS68qSJ001lI8tIFPRN5Wfg9FT5.1>

**Webinar ID:** 839 6153 8964

**Passcode:** 296733

#### To access the meeting by phone:

1-669-900-6833 or 1-888-788-0099 (toll-free)

*Mute/Unmute – Press \*6 / Raise Hand – Press \*9*

***The times listed on the agenda are used by the Chair and are estimates only. The times are subject to change at any time, including while the meeting is in progress.***

1. **0800 Call to Order**
2. **0801 Roll Call**
3. **0803 Oral Communications for Items not on the Agenda**  
*Speakers' time is limited to three minutes.*
4. **0804 Review and Approval of Minutes**
  - a. Minutes of March 4, 2024
5. **0809 Evacuation Plan Status and Discussion (Pfau to lead)**
  - a. Short update from Dale Pfau and Fire Marshal on status of plan
  - b. Review and approval by committee expected in May meeting of the EPC
  - c. Discuss Geologic Hazzard report from Geologic Safety Committee
  - d. Discuss update to evaluation study
6. **0830 WPV-CERT/READY/WFPD Report (Brown/Cuschieri)**
7. **0840 Subcommittee Reports**
  - a. Communications (Rothrock)
  - b. TIS Sign Subcommittee (Heberer)
  - c. Evacuation (Pfau)
  - d. Neighborhood and Resident Outreach (Schachter)
  - e. Ad Hoc Safety Element (Pfau)

Dale Pfau, Member  
Lynn Eisberg, Member  
Craig Heberer, Member  
Marianne Plunder, Member  
Chris Raanes, Chair  
Ray Rothrock, Member  
Jerry Shefren, Vice Chair  
Vic Schachter, Member  
Bud Trapp, Member  
Randy True, Member

**8. 0859 Next regular meeting is May 2, 2023**

- a. Quorum check

**9. 0900 Adjourn**

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**Land Acknowledgement:**

The Town of Portola Valley acknowledges the colonial history of this land we dwell upon—the unceded territory of the Ramaytush (rah-my-toosh) Ohlone, Tamien Nation, and Muwekma (mah-WEK-mah) Ohlone, who endured a human and cultural genocide that included removal from their lands and their sacred relationship to the land. Portola Valley recognizes that we profit from the commodification of land seized from indigenous peoples and now bear the ecological consequences. We seek to understand the impact of these legacies on all beings and to find ways to make repair.

## **Emergency Preparedness Committee Minutes 07MAR24**

1. **07MAR24 In-Person Meeting** was called to Order by Chair Raanes at 0801.
2. Individual **Roll Call** taken and a quorum was established.
  - Committee Members Lynn Eisberg, Craig Heberer and Jerry Shefren attended by Zoom
  - Town Council Liaison Jeff Aalfs present
  - WFPD Chief Cuschieri present
3. **Oral Communications for Items not on the Agenda**
  - No oral communications
4. **Review and Approval of Minutes**
  - Motion to approve 01FEB24 Minutes was made and the Minutes were approved unanimously without changes
  - Committee Member Plunder abstained
5. **Town Status Report**
  - No Town Report given
6. **Evacuation Plan Status and Discussion (Pfau to lead)**
  - Committee Member Pfau presented V2.0 of Evacuation Plan
  - Committee discussion followed
  - Geologic Safety Committee email input shared and discussed and suggested adding the information as an appendix
  - Consensus of committee is to endorse the process and move forward with the plan and get it to the Town Council ASAP
  - Jeff Aalfs offered to write an update memo and present the memo to the Town Council in April
  - Committee Member Pfau gave a brief update on the Ladriss Evacuation Tool
  - Roberta Zarea, Superintendent of Portola Valley School District communicated that she would like a chance to meet and discuss and give input on the plan to our Town Manager
  - Motion made in support of the V2.0 Evacuation Draft; that the EPC likes and supports the plan; the EPC is grateful to WFPD; and support Jeff Aalfs time schedule to present to the Town Council in April and the Motion was approved with one abstention by Randy True
7. **WPV-CERT/READY/WFPD Report (Brown/Cuschieri)**

- Temporary audio disruption during this presentation and L. Eisberg (attending via Zoom) could not hear the report
- Please refer to the recorded meeting for the updates

#### **8. Town Council Liaison Update (Jeff Aalfs)**

- EPiC funding went through
- Town Hall restructuring is ongoing
- J. Shefren mentioned that Sequoia Healthcare District approved 45K to WFPD to purchase another trailer for the Skyline Area

#### **9. Subcommittees**

- Evacuation Standing Subcommittee: D. Pfau (Chair) and R. True
- Combine Neighborhood Outreach and MARCOM: V. Schachter (Chair), M. Plunder, R. True
- Safety Element Adhoc Committee: D. Pfau (Chair)

#### **10. Subcommittee Reports**

##### a. Communications (Rothrock)

- All Green
- Howard Young completed radials

##### b. TIS Sign Subcommittee (Heberer)

- Draft Report presented and reviewed
- EPC supports the draft
- Motion to remove the word "DRAFT" and move the report forward to the Town Manager and ASCC was made and approved. Randy True abstained.

#### **11. Next regular meeting is 04APR24**

#### **12. Motion to adjourn at 0924 was made and approved quickly and unanimously.**

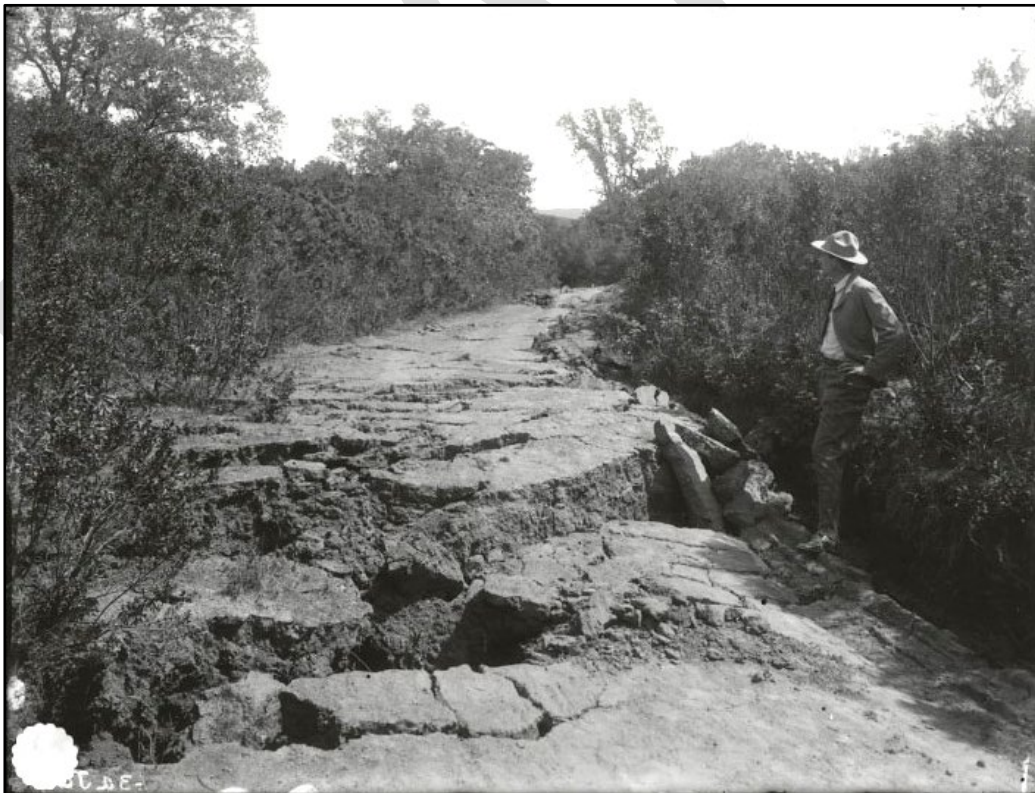
Respectfully Submitted,  
Lynn Eisberg



## Evacuation of Portola Valley During a Wildfire Following an Earthquake

*The next strong earthquake that strikes Portola Valley will create many road blockages. Multiple fires could ignite due to the severe shaking. The major roads must be immediately cleared of obstructions after the earthquake for people to evacuate.*

The question facing the Town of Portola Valley is when—not if—a damaging earthquake will strike Portola Valley. A powerful earthquake (magnitude 6 or greater) will almost certainly block roads and start fires. Water, communications, and energy systems may be heavily damaged, hampering shelter-in-place directives. A large fire developing after an earthquake (WFE—wildfire following earthquake) will severely hinder evacuation of the Town. All the evacuation routes could be impacted by offset roadbeds, broken pavement, and other blockages, impeding both egress and ingress. If not quickly repaired, road blockages could be catastrophic. As an example, the photograph below, taken shortly after the magnitude 7.9 (M7.9) 1906 earthquake, shows ground displacement that rendered upper Alpine Road impassable to vehicle traffic. **We expect similar road damage from the next large earthquake** on the San Andreas fault system.



*Alpine Road shortly after the M7.9 1906 earthquake. Vertical offset of Alpine Road 5 miles west of Stanford University. Per J. C. Branner. The wide rift in the foreground was created by the rupture of the San Andreas fault but crosses the 1906 fault trace at an angle. This 1906 photograph was published in [The California Earthquake of April 18, 1906: Report of the State Earthquake Investigation Commission \(1908\)](#). Digital copy from the Andrew C. Lawson Collection, BANC PIC 1957.007, The Bancroft Library, University of California, Berkeley. Courtesy of UC Berkeley, Bancroft Library.*

Powerful earthquakes trigger numerous secondary hazards in addition to wildfires. Besides creating direct surface ruptures, earthquakes produce strong shaking that can cause trees and/or power poles to fall across roadways and can damage bridges and culverts. Intense seismic shaking also causes liquefaction of saturated ground, off-fault surface displacements, landslides, and/or mudslides. Major earthquakes may also trigger surface displacements on smaller faults.

On the following pages, the map and its explanation of symbols show locations where earthquake hazards may disrupt Portola Valley's main evacuation routes. These essential arteries may be locally blocked, slowing or prohibiting rapid evacuation during a WFE event. Immediate repair of major roadways will be essential to our survival.

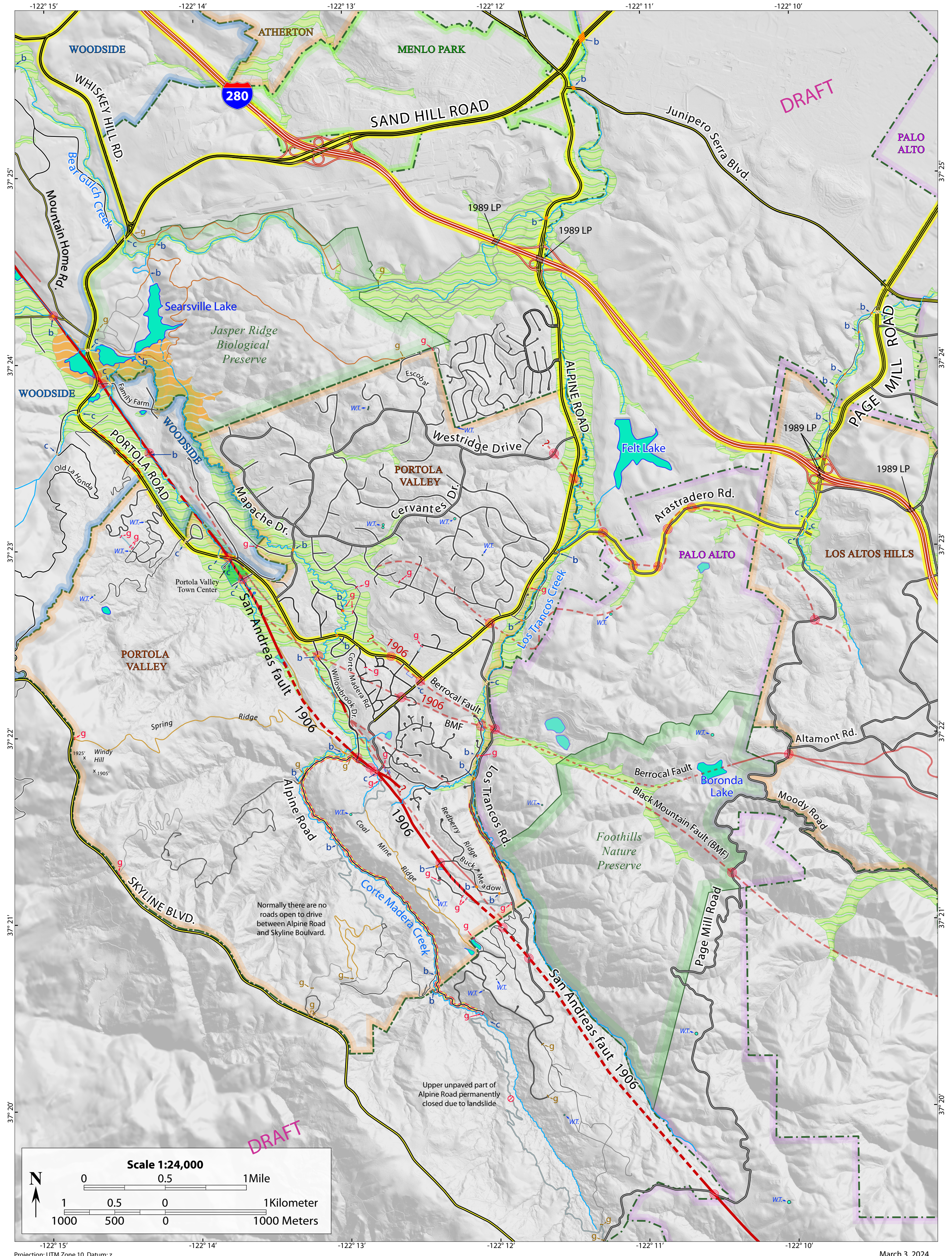
It is difficult to predict exactly where blockages will occur after a particular earthquake and unlikely that all potential blockages shown on the map will occur during one event. In Portola Valley, many seismically active faults are well mapped and precisely located, whereas features for a range of other breaks are less well documented and/or are poorly located. The map employs red lines for faults: heavy solid lines indicate well-documented breaks, whereas long and short dashes mark progressively less well-proven faults. Moreover, because Portola Valley is broadly covered by vegetation and surficial layers of unconsolidated alluvium and soil, which obscure evidence of old surface ruptures, many hidden faults may well exist but are yet to be discovered and mapped.

See [Evacuation of Portola Valley During a Wildfire Following Earthquake \[LINK\]](#) for a fuller discussion.

Portola Valley Geologic Safety Committee  
[date]



# Evacuation Routes and Earthquake Related Hazards, Portola Valley, California





## EXPLANATION

### Evacuation Routes and Earthquake Related Hazards, Portola Valley, California

#### Geologic Road Hazards

Symbol	Explanation
	Moderate susceptibility to liquefaction (lime green with wavy lines)
	High susceptibility to liquefaction (orange with wavy lines)
	Active 1906 trace of the San Andreas fault: Solid where location is certain, solid with diagonal black stripe is an echelon surface rupture, long dashes where uncertain (red, wide)
	Faults other than the 1906 San Andreas trace: Solid where location is certain, solid with diagonal black stripe is an echelon surface rupture, long dashes where uncertain, and short dashes where covered or inferred, '?' where end unknown (light red)
	Fault crossing road (red concentric circles)
	Road susceptible to landslides and debris flows (red and yellow stripes)
	Highway 280 bridge damaged in 1989 Loma Prieta Earthquake
	Buckled pavement in 1989 Loma Prieta Earthquake at Page Mill Rd. (red stripes across road).

#### Borders

Symbol	Explanation
	Preserve border
	City or town border

#### Roads

Symbol	Explanation
	Highway
	4-lane road
	Two-lane road with painted center line: wide yellow center line: wide road with bike lanes, white center line: no bike lane.
	Major evacuation route for entire town (yellow highlight)
	Residential road
	One-lane road
	Gravel road
	Dirt road
	Paved road -private property
	Gravel road -private property

#### Structures

Symbol	Explanation
	Bridge
	Large culvert
	Fire Gate (red)
	Private Gate (brown)
	Water Tank

#### Water

Symbol	Explanation
	Creek
	Lake or Pond

## Emergency Preparedness Committee

**To:** Emergency Preparedness Committee  
**From:** Evacuation Subcommittee  
**Date:** April 4, 2024  
**Re:** Updated Evacuation Studies

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### Summary

In 2022, Fehr & Peers produced an Evacuation Traffic Evacuation Capacity Study for Portola Valley. The study provided model-based evacuation times under three different scenarios: all roads open, Portola Road blocked, and Alpine/Arastradero blocked. The base assumptions included the evacuation starting at 6 am, and approximately 2 cars per household. The study highlighted that it could take longer than **3 hours** to evacuate if roads were blocked. The study did not include any impact from additional housing required by the recently passed Housing Element.

Subsequent to the Fehr & Peers study, WFPD and members of the EPC were introduced to Ladriss, a small company that had developed a flexible cloud based cloud-based evacuation modelling platform. WFPD and Portola Valley have since purchased access to the Ladriss system. After considerable efforts, we believe the Ladriss model is now positioned to provide reasonably accurate statistical modelling of evacuation scenarios for Portola Valley and surrounding areas. We have spent the time to model the additional cars that would be anticipated from the recent Housing Element and have run simulations of the resulting evacuation times that are presented in this report. Please read the rest of this memo for a more detailed discussion.

The results make sense; when all roads are open, there is a slight increase in evacuation times due to the new housing. However, evacuation times increase substantially when roadways are blocked. In particular, when Alpine/Arastradero roads are blocked the average evacuation times increase by almost 30 minutes, and the maximum evacuation time increases by almost an hour to an alarming **5 hours!** This increase also makes sense, since much of the new housing is concentrated along Alpine Road. We have always advised that the maximum evacuation times are the most relevant for emergency personnel and public officials. The Fehr & Peers report offers several suggestions to begin to mitigate evacuation times and we strongly recommend that efforts should be made to improve evacuation before new housing is completed.

Scenario		Fehr & Peers*	Ladris - Baseline	Ladris - Add HE cars
<b>All Roads Open</b>	Mean	23-40 minues	41 minutes	54 minutes
	Median		42 minutes	58 minutes
	Maximum	75-90 minutes	99 minutes	106 minutes
	Std Dev		+/- 21 minutes	+/- 23 minutes
<b>Portola Road Blocked</b>	Mean	60-84 minutes	62 minutes	84 minutes
	Median		67 minutes	85 minutes
	Maximum	120-165 minutes	160 minutes	178 minutes
	Std Dev		+/- 36 minutes	+/- 41 minutes
<b>Alpine/Arastradero Blocked</b>	Mean	76-114 minutes	168 minutes	195 minutes
	Median		192 minutes	209 minutes
	Maximum	165-225 minutes	237 minutes	301 minutes
	Std Dev		+/-60 minutes	+/- 77 minutes

\*F&P mean is taken 30 minutes after evac starts; F&P max is at 90% population evacuated

## Fehr & Peers Wildfire Evacuation Traffic Capacity Study

The final report can be found here: [Evacuation Traffic Capacity Study 2022](#). We recommend that readers take another look at this study. It was the result of three public meetings to discuss the methodology and scenarios, followed by three presentations of the final report. During the process, members of the EPC met weekly with the consultants and provided significant amounts of local data to produce the best possible report.

As with any study, significant assumptions were made on many variables during the process. The Fehr & Peers evacuation model is a proprietary model; thus a model from another source could have different results. As with any statistical model, we should expect different results under different boundary conditions, and actual situations are difficult to anticipate.

The most important result from the study is a verification that **Portola Valley has a serious problem evacuating its residents in an emergency, particularly if one of the two major exit routes is blocked**. The model is also unable to assess any incidents (car accidents, fallen power poles, etc.) that would further disrupt evacuation traffic. Reports from the Paradise Fire and others are quite alarming regarding suddenly blocked exit routes.

The Fehr & Peers Study offered several suggestions for improving evacuation times, such as widening Alpine Road and investigating emergency road clearance crews (see Section 4.2, page 33 and section 5 page 41). All efforts should be made to move forward on these suggestions and others to improve our roadways and reduce evacuation times. It is imperative that these mitigation projects are completed before significant additional housing is built in Portola Valley.

## Ladris Evacuation Simulation Tool

In late 2022, members of the EPC were introduced to Ladris ([Ladris | AI for Climate](#)) by WFPD. Over the next two years, members of the EPC and other volunteers spent many days with Ladris to address software bugs, user interface deficiencies, core data discrepancies, and a myriad of other issues. Portola Valley, WFPF, and Woodside all purchased licenses with Ladris in 2023 and continued for 2024. Members of the EPC, primarily Rob Younge, continued to spend time with Ladris and by early 2024, we were comfortable that the platform was reasonably accurate for evacuations in Portola Valley.

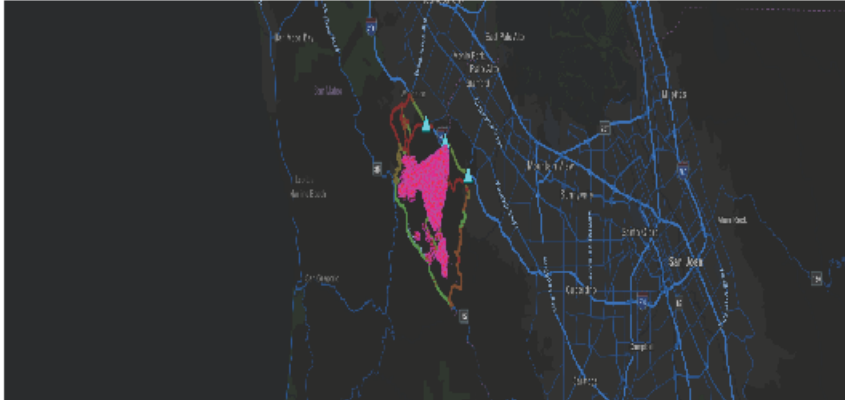
The first test of Ladris was to make sure that its simulation results were comparable to those of Fehr & Peers in the same scenarios (“Ladris – Baseline” column). Again, it took a fair amount of time to adjust all the various parameters to align the scenarios. Also, it should be noted that the Ladris output is not exactly in the same format as Fehr & Peers, but they are reasonably close. Next, we loaded the additional cars that could be expected from the additional housing from the recently passed Housing Element. Those results are shown in the “Ladris – add HE cars” column. The results are interesting and somewhat intuitive. Average and Max evacuation times with all roads open increase only modestly – this makes sense, as much of the new housing will be built on the Alpine Road corridor (however, please note that it will take almost an hour for someone evacuating to actually get out of town). The most significant changes are noticeable as roads are blocked. For example, the maximum evacuation time if Alpine/Arastradero are blocked balloons to 5 hours. This is clearly alarming and demonstrates the danger facing an evacuation in Portola Valley during a wildfire.

Now that we have worked with Ladris, it is possible to fairly rapidly run new scenarios with different road blockages, number of cars, alternative exit routes, etc. As we move forward, we believe this will become a useful tool for first responders and the town.

# Evacuation Simulation | Woodside/Portola Valley

2024-02-14T00:03:27.806Z

Operator: Rob Younge



Map powered by Esri.

Title: Org

Projections

Metric	Projection
Median	0H 41M
Mean	0H 42M
Standard Deviation	0H 21M
Maximum	1H 39M
Minimum	0H 2M
Addresses Evacuated	2442 addresses
Passenger Cars Evacuated	4884 passenger cars
Heavy Vehicles Evacuated	1221 heavy vehicles
Simulation Type	Zoned

Notice: This report is generated by a modeling algorithm that identifies patterns in disaster response. It is dependent upon the assumptions used by the operator in generating the report and the accuracy of third-party data. It is unlikely to fully reflect all of the complexity inherent in chaotic environments. Any assessment of future outcomes carries inherent risk, and Ladris does not assume responsibility for decisions made as a result of projections. End users should possess expertise in understanding the real-world implications of forecasts, and should always exercise sound judgement and expert discretion when interpreting results.

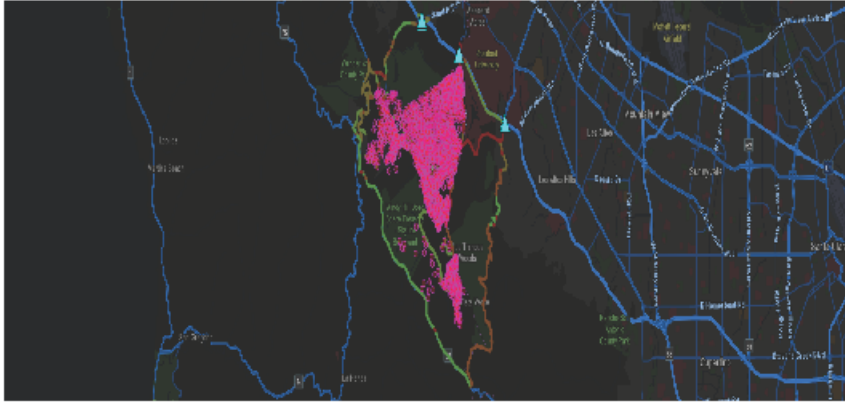
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# Evacuation Simulation | Woodside/Portola Valley

2024-02-14T00:18:38.400Z

Operator: Rob Younge



Map powered by Esri.

Title: OrgPortola

## Projections

Metric	Projection
Median	1H 2M
Mean	1H 7M
Standard Deviation	0H 36M
Maximum	2H 40M
Minimum	0H 1M
Addresses Evacuated	2444 addresses
Passenger Cars Evacuated	4888 passenger cars
Heavy Vehicles Evacuated	1222 heavy vehicles
Simulation Type	Zoned

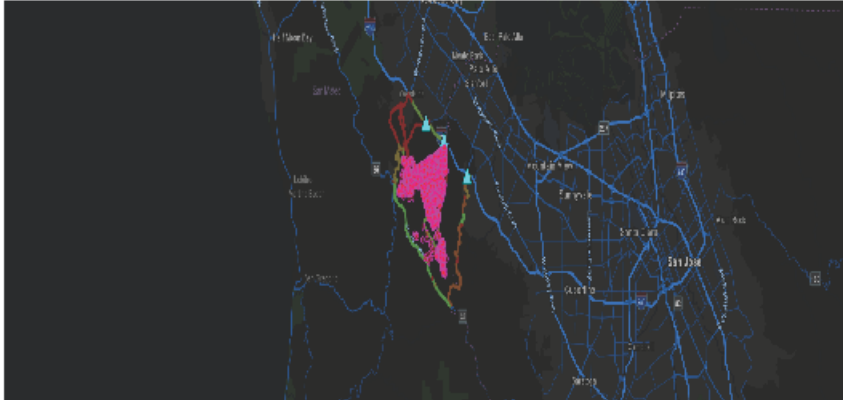
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# Evacuation Simulation | Woodside/Portola Valley

2024-02-14T00:31:41.529Z

Operator: Rob Younge



Map powered by Esri.

Title: OrgAlpineAs

## Projections

Metric	Projection
Median	3H 12M
Mean	2H 48M
Standard Deviation	1H 0M
Maximum	3H 57M
Minimum	0H 3M
Addresses Evacuated	2443 addresses
Passenger Cars Evacuated	4888 passenger cars
Heavy Vehicles Evacuated	1221 heavy vehicles
Simulation Type	Zoned

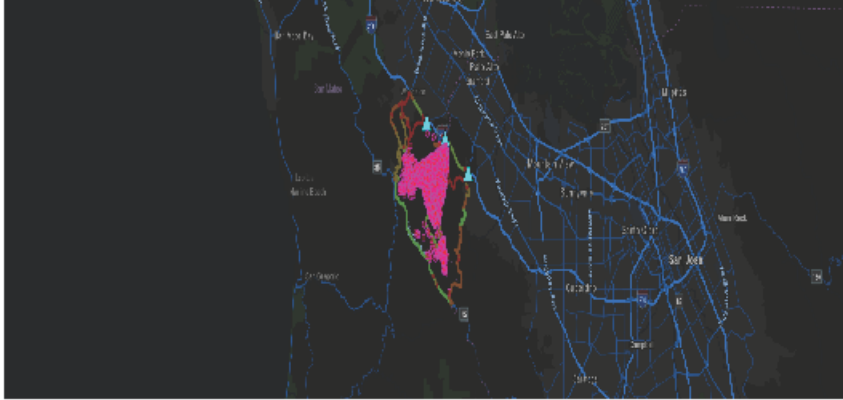
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# Evacuation Simulation | Woodside/Portola Valley

2024-03-19T17:27:13.681Z

Operator: Rob Younge



Map powered by Esri.

Title: All New Housing all roads open v2

## Projections

Metric	Projection
Median	0H 58M
Mean	0H 54M
Standard Deviation	0H 23M
Maximum	1H 48M
Minimum	0H 1M
Addresses Evacuated	2453 addresses
Passenger Cars Evacuated	5411 passenger cars
Heavy Vehicles Evacuated	1352 heavy vehicles
Simulation Type	Zoned

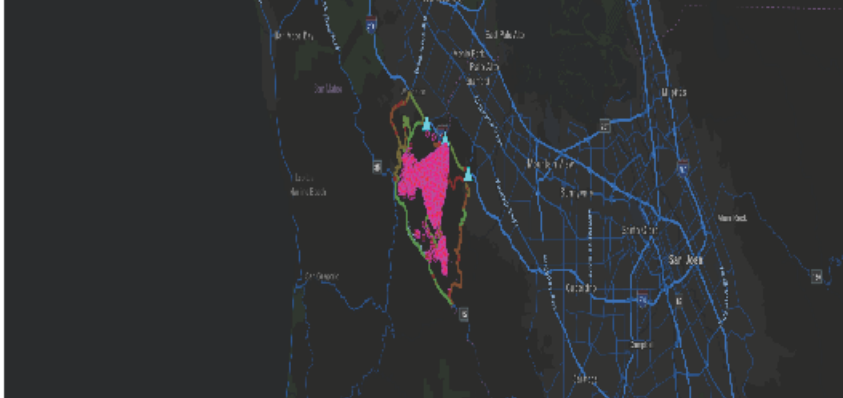
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# Evacuation Simulation | Woodside/Portola Valley

2024-03-19T17:31:42.598Z

Operator: Rob Younge



Map powered by Esri.

Title: All New Housing Portola Blocked v2

## Projections

Metric	Projection
Median	1H 25M
Mean	1H 24M
Standard Deviation	0H 41M
Maximum	2H 58M
Minimum	0H 1M
Addresses Evacuated	2453 addresses
Passenger Cars Evacuated	5411 passenger cars
Heavy Vehicles Evacuated	1352 heavy vehicles
Simulation Type	Zoned

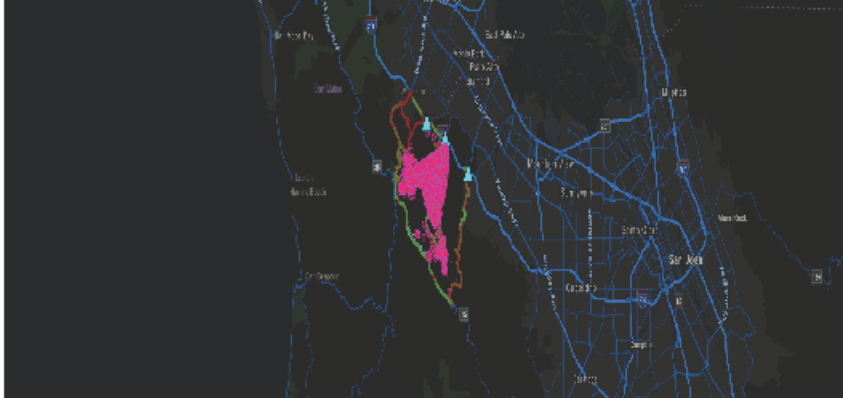
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# Evacuation Simulation | Woodside/Portola Valley

2024-03-19T17:29:29.242Z

Operator: Rob Younge



Map powered by Esri.

Title: All New Housing Alpine Arastadero Blocked v2

## Projections

Metric	Projection
Median	3H 29M
Mean	3H 15M
Standard Deviation	1H 17M
Maximum	5H 1M
Minimum	0H 1M
Addresses Evacuated	2453 addresses
Passenger Cars Evacuated	5411 passenger cars
Heavy Vehicles Evacuated	1352 heavy vehicles
Simulation Type	Zoned

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